DOCUMENT RESUME

ED 358 337 CE 063 917

TITLE	Agricultural Production. Florida Vocational Program Guide.
INSTITUTION	Florida State Univ., Tallahassee. Center for Instructional Development and Services.
SPONS AGENCY	Florida State Dept. of Education, Tallahassee. Div. of Vocational, Adult, and Community Education.
PUB DATE	Jul 90
NOTE	66p.
AVAILABLE FROM	Division of Vocational, Adult, and Community Education, Bureau of Career Development and Educational Improvement, Florida Education Center, Tallahassee, FL 32399-0400 (order no. AG 406 BK 90, guide; AG 407 BK 89, Career Merit Achievement Plan).
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Agricultural Production; Animal Husbandry; Articulation (Education); Behavioral Objectives; *Career Development; Classroom Techniques; Competence; Competency Based Education; *Educational Resources; Entry Workers; Field Crops; Job Skills; Postsecondary Education; Program Guides; *Program Implementation; Secondary Education; State Standards; *Student Evaluation; Teaching Methods; Test Items
IDENTIFIERS	Florida

ABSTRACT

This packet contains a program guide and Career Merit Achievement Plan (Career MAP) for the implementation of an agricultural production program in Florida secondary and postsecondary schools. The program guide describes the program content and structure, provides a program description, lists job titles under the program, and includes a curriculum framework and student performance standards for agricultural production courses. The curriculum framework outlines major concepts and content, laboratory activities, program specifics, and intended outcomes; the student performance standards guide lists each standard and the behaviors expected to show mastery of each standard. The guide also provides information on the following: teacher certification, professional organizations and support services, facility design for agricultural production laboratories and classrooms, equipment, safety, program implementation, teacher professional development, and instructional resources (a listing of 20 print materials, 10 audiovisuals, and 3 computer software programs). Appended to the program guide is a sample student learning guide that includes program title, intended outcome, activity, performance objective, enabling objectives, terms, procedures, information sheets, self-check and answers, and a written test with answer sheet. The Career MAP is a checklist, to be kept by student and teacher, of student progress in the competencies required for entry into jobs in agricultural production. (KC)

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FLORIDA VOCATIONAL PROGRAM GUIDE FOR

AGRICULTURAL PRODUCTION

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Produced by
Center for Instructional Development and Services
College of Education
Florida State University

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FLORIDA VOCATIONAL
PROGRAM GUIDE FOR

AGRICULTURAL PRODUCTION

State of Florida
Department of Education
Tallahassee, Florida
Betty Castor, Commissioner
Affirmative action/equal opportunity employer

Division of Vocational, Adult, and Community Education
Bureau of Vocational Program and Staff Development

July 1990

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ACKNOWLEDGMENTS

The Division extends appreciation to Marvin D. Patterson, project coordinator; Fred Marrinan, project manager; William B. Roberts, editor; Robert Celander, visual designer; and Margaret Campbell, information researcher, all of the Center for Instructional Development and Services.

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INTRODUCTION

The *Florida Vocational Program Guide for Agricultural Production* has been developed to provide information that will be useful to local administrators, regional coordinating councils, teachers, and others charged with the responsibility of offering vocational education in Agricultural Production in school districts, area vocational-technical centers, and community colleges. The final planning, implementation, and evaluation of any educational program, however, must be done within the context of local conditions and local needs.

Many of the elements involved in the creation and maintenance of a vocational education program are generic to all subject areas; these issues are addressed in detail in the *Florida Vocational Program Implementation Guide* (*FVPIG*), **which should be considered an essential companion piece to this document.** The *FVPIG* contains information on the following:

- the importance of, as well as development strategies for, student learning guides
- information addressing concerns about program planning and implementation
- teacher requirements, updating, and certification
- program evaluation requirements
- in-depth program-component description

The *Florida Vocational Program Guide for Agricultural Production* will serve to identify particular considerations in the organization, operation, and evaluation of this specific vocational education program.

This program guide helps ensure equivalency. Agricultural Production programs, if implemented throughout Florida according to the criteria described in this document, will help many citizens fill important roles in our state and national work force.

PROGRAM CONTENT AND STRUCTURE

The content of the Agricultural Production program is based on occupational competencies and employability skills required for entry into the agricultural production industries. The basic content of this program is described in the Florida Curriculum Framework and Student Performance Standards (SPSs).

The Agricultural Production program includes both classroom and practical learning experiences that provide students with career information and job requirements for occupations in the field of agricultural production. This program provides students with an initial exposure to the skills and attitudes associated with careers in related agricultural occupations. The basic skills and attitudes related to these occupations are indicated as intended outcomes in the Curriculum Framework of this guide.

Job Title and Description

Job Title: Farmworkers, General II (DOT 421.687-010); Farm Machine Operators (DOT 409.683-010); et al.

Description: Agricultural production workers may be involved in the operation of farm machinery and equipment, equipment maintenance, and a variety of farm-related manual, animal- and crop-raising tasks on general farms under close supervision.

Curriculum Framework and Student Performance Standards

Program objectives and content should be consistent with the Vocational Education Program Courses Standards as approved by the Florida State Board of Education. Provided on the following pages are the Curriculum Framework and Student Performance Standards for Agricultural Production courses as listed in the official *Vocational Education Program Courses Standards* document. Since these SPSs are continually updated, you should check with your district's agribusiness and natural resources education supervisor and the regional program specialist for a current version every year.

CURRICULUM FRAMEWORK — PROGRAM AREA: Agriculture

FLORIDA DEPARTMENT OF EDUCATION — EFFECTIVE DATE: July, 1990

PROGRAM TITLE: Agricultural Production

CODE NUMBER: Secondary 8106000 Postsecondary

Florida CIP 0101.030100

SECONDARY SCHOOL CREDITS 3 COLLEGE CREDITS — POSTSECONDARY ADULT VOCATIONAL CREDITS —

APPLICABLE LEVEL(S): 7-9 9-12 Postsecondary Adult Vocational

Postsecondary Vocational X Other 10-12, 30, 31

CERTIFICATION COVERAGE: VOC AGRI @4, AGRI PROD #7, AGRI @4, AGRICULTUR 1 2

I. **Major Concepts/Content:** The purpose of this program is to prepare students for employment as farmworkers, general II (421.687-010), farmworkers, diversified crops II (407.687-010), farm machine operators (409.683-010), farmworkers, livestock (410.664-010), or to provide supplemental training for persons previously or currently employed in these occupations.

The content includes, but is not limited to, instruction that prepares individuals in a general way to plan and use facilities, land, water, machinery, chemicals, finance, and labor in the production of plants and animals. Subject matter also includes breeding of livestock, planting and harvesting crops, fertilization, animal health, plant and animal insect/disease control, record keeping, and machinery operation and maintenance, as well as employability and communication skills.

Listed below are the courses that comprise this program when offered at the secondary level:

8106010 Agricultural Production 1
8106020 Agricultural Production 2
8106030 Agricultural Production 3

II. **Laboratory Activities:** Agricultural shop and crop and livestock laboratory activities are an integral part of this program, including the safe use of mechanics' hand tools, field hand tools, hand and portable power carpentry tools, arc welders, oxyacetylene torches, tractors and field equipment, large animal restraining equipment, and animal health-care instruments.

III. **Special Note:** Future Farmers of America is the appropriate vocational student organization for providing leadership training and for reinforcing specific vocational skills. When provided, these activities are considered an integral part of this instructional program.

Planned and supervised occupational activities must be provided through one or more of the following: (1) directed laboratory experience, (2) student projects, (3) placement for experience, and (4) cooperative experience.

Because of the production and marketing cycle of the agricultural production industry, this program requires individual instruction and supervision of students for the entire period beyond the 180-day school year.

The cooperative method of instruction is appropriate for this program. Whenever the cooperative method is offered, the following is required for each student: a training plan (signed by the student, teacher, and employer), which includes instructional objectives and a list of on-the-job and in-school learning experiences; and a workstation that reflects equipment, skills, and tasks which are relevant to the occupation that the student has chosen as a career goal. The student must receive compensation for work performed.

The particular outcomes and student performance standards that the handicapped student must master to earn credit must be specified in the student's individual educational plan (IEP). Additional credits may be earned when outcomes and standards are mastered in accordance with the requirements indicated in subsequent IEPs. The job title for which the student is being trained must be designated in the IEP.

IV. **Intended Outcomes:**

01. Compare production systems.
02. Select livestock and poultry.
03. Describe breeding and livestock production procedures.
04. Prepare soil and plant crops.
05. Feed livestock.
06. Fertilize plants and crops.
07. Irrigate plants and crops.
08. Maintain animal health and sanitation.
09. Control weeds.
10. Control insects, diseases, and other plant pests.
11. Fit, show, and exhibit livestock.
12. Harvest and market livestock and crops.
13. Construct, repair, maintain, service, and manage equipment.
14. Maintain records.
15. Follow safety precautions.

16. Demonstrate leadership, communication, employability, and human relations skills.
17. Demonstrate an understanding of entrepreneurship.
18. Demonstrate proficiency in applying basic mathematics, science, and communication skills to agriculture problem solving.

STUDENT PERFORMANCE STANDARDS | EFFECTIVE DATE: July, 1990

PROGRAM AREA: Agriculture | SECONDARY NUMBER: 8106000

PROGRAM TITLE: Agricultural Production | POSTSECONDARY NUMBER: _____

01.0 COMPARE PRODUCTION SYSTEMS--The student will be able to:

- 01.01 Compare different animal production systems.
- 01.02 Compare different crop production systems.

02.0 SELECT LIVESTOCK AND POULTRY--The student will be able to:

- 02.01 Identify major parts of livestock anatomy.
- 02.02 Identify breeds of commercial livestock.
- 02.03 Evaluate desirable conformation characteristics of livestock.
- 02.04 Identify wholesale cuts of beef and pork.

03.0 DESCRIBE BREEDING AND LIVESTOCK PRODUCTION PROCEDURES--The student will able to:

- 03.01 Compare breeding methods.
- 03.02 Select methods of breeding livestock appropriate for enterprise.
- 03.03 Identify anatomy of male and female reproductive tracts of livestock.
- 03.04 Describe and identify the reproductive cycle of livestock.
- 03.05 Identify procedures necessary for developing a breeding program and schedule.
- 03.06 Identify signs of livestock pregnancy and methods of pregnancy testing.
- 03.07 Identify signs of parturition and assist livestock at parturition.
- 03.08 Identify causes of infertility in livestock.
- 03.09 Care for newborn livestock.
- 03.10 Describe methods of marking livestock for identification.

04.0 PREPARE SOIL AND PLANT CROPS--The student will be able to:

- 04.01 Select site based on land capability.
- 04.02 Perform vegetative and mechanical conservation practices.
- 04.03 Operate and adjust tillage equipment.
- 04.04 Prepare a seedbed or planting site.
- 04.05 Select varieties of crops adapted to local growing conditions.
- 04.06 Evaluate seed and planting materials.
- 04.07 Calculate seeding rate and spacing.
- 04.08 Calibrate and adjust planting equipment.
- 04.09 Plant seed and plant material.
- 04.10 Describe cultural practices for crops.

05.0 FEED LIVESTOCK--The student will be able to:

- 05.01 Categorize major livestock food groups and explain functions.

05.02 Determine nutritional requirements of livestock.
05.03 Describe livestock digestive system.
05.04 Maintain a fresh, clean water supply for livestock.
05.05 Calculate cost of gain per pound for different feed rations.
05.06 Select and administer growth stimulators and implants.
05.07 Interpret information on feed labels.
05.08 Mix feed and feed livestock.
05.09 Balance a feed ration.
05.10 Store feed properly.

6.0 FERTILIZE PLANTS AND CROPS--The student will be able to:

06.01 Collect soil or plant tissue samples for analysis.
06.02 Determine nutrient requirements for plants.
06.03 Calculate fertilization rates.
06.04 Identify common nutrient-deficiency symptoms in plants.
06.05 Interpret information on a fertilizer label.
06.06 Compare sources and forms of plant nutrients.
06.07 Describe methods of applying fertilizer materials.
06.08 Calibrate fertilization equipment.
06.09 Fertilize plants.

07.0 IRRIGATE PLANTS AND CROPS--The student will be able to:

07.01 Recognize soil and plant conditions indicating irrigation needs.
07.02 Compare irrigation equipment and methods.
07.03 Operate irrigation equipment.

08.0 MAINTAIN ANIMAL HEALTH AND SANITATION--The student will be able to:

08.01 Identify and report common livestock diseases.
08.02 Identify and report disorders associated with feeding (bloat, colic, mold, etc.).
08.03 Identify and report symptoms of stress in livestock.
08.04 Identify and report infestations of livestock internal and external parasites.
08.05 Assist in the treatment of common livestock diseases and other health disorders.
08.06 Administer medication and vaccines.
08.07 Clean and disinfect trailers, pens, and other livestock equipment.
08.08 Restrain livestock.
08.09 Dispose of animal waste.
08.10 Identify and follow regulations regarding the use of pesticides and medications on breeding and slaughter animals.
08.11 Describe methods of desexing livestock.
08.12 Describe methods of dehorning.

09.0 CONTROL WEEDS--The student will be able to:

09.01 Identify weeds common to growing area.
09.02 Identify cultural practices that aid in weed control.
09.03 Interpret information on herbicide labels.
09.04 Select appropriate herbicide for weed control.

09.05 Calibrate chemical weed-control equipment.
09.06 Apply weed-control chemicals.
09.07 Identify and select mechanical weed-control equipment.
09.08 Operate and adjust mechanical weed-control equipment.

10.0 CONTROL INSECTS, DISEASES, AND OTHER PLANT PESTS--The student will be able to:

10.01 Identify common insects and diseases that affect local crops.
10.02 Describe life cycles of common insects and diseases of plants.
10.03 Interpret information on a pesticide label.
10.04 Select appropriate pesticide for pest and crop conditions.
10.05 Calibrate pesticide application equipment.
10.06 Apply pesticides safely.

11.0 FIT, SHOW, AND EXHIBIT LIVESTOCK--The student will be able to:

11.01 Train and/or break animals for show.
11.02 Wash, clip, and groom livestock for show.
11.03 Obtain, complete, and submit show application forms and other certificates (e.g., TB, brucellosis certification).
11.04 Feed animals for show.
11.05 Prepare and maintain a clean and attractive livestock exhibit.
11.06 Exhibit and show livestock.
11.07 Prepare a show record book for exhibited animals.
11.08 Trim hooves of livestock.

12.0 HARVEST AND MARKET LIVESTOCK AND CROPS--The student will be able to:

12.01 Determine maturity of livestock and crops.
12.02 Estimate volume of crop to be harvested.
12.03 Harvest crops.
12.04 Compare, select, and locate marketing channels.
12.05 Grade, sort, and/or package harvested crops.
12.06 Market crops and livestock.
12.07 Identify and/or determine market grades of livestock.
12.08 Load and transport agricultural products.

13.0 CONSTRUCT, REPAIR, MAINTAIN, SERVICE, AND MANAGE EQUIPMENT--The student will be able to:

13.01 Construct, repair, and maintain gates, pens, cages, and fences.
13.02 Repair and maintain agricultural buildings and shelters.
13.03 Construct livestock shelters.
13.04 Repair, maintain, service, and adjust agricultural equipment.
13.05 Operate farm tractor safely.
13.06 Install, repair, and service irrigation equipment.
13.07 Use and maintain hand and power hand tools safely.
13.08 Maintain and service small gasoline engines safely.
13.09 Cut and weld with arc and acetylene welding equipment safely.
13.10 Prepare equipment for storage.

14.0 MAINTAIN RECORDS--The student will be able to:

14.01 Maintain production, performance, and breeding records.
14.02 Maintain machinery, equipment, and facilities inventory records.
14.03 Maintain breed, vaccination, and health certificates and records.
14.04 Identify agencies assisting and/or regulating the agricultural business.
14.05 Maintain basic business records (inventory, depreciation, receipts, expenses, taxes, etc.).
14.06 Maintain supervised occupational experience records.

15.0 FOLLOW SAFETY PRECAUTIONS--The student will be able to:

15.01 Handle, store, and dispose of agricultural chemicals and containers safely.
15.02 Handle and store flammable materials properly.
15.03 Recognize symptoms of chemical pesticide, herbicide, etc. poisoning and apply first aid.
15.04 Practice safe livestock handling procedures.
15.05 Recognize common safety symbols.

16.0 DEMONSTRATE LEADERSHIP, COMMUNICATION, EMPLOYABILITY, AND HUMAN RELATIONS SKILLS--The student will be able to:

16.01 Conduct a job search.
16.02 Secure information about a job.
16.03 Identify documents that may be required when applying for a job.
16.04 Complete a job application form correctly.
16.05 Demonstrate competence in job interview techniques.
16.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
16.07 Identify acceptable work habits.
16.08 Demonstrate knowledge of how to make job changes appropriately.
16.09 Demonstrate acceptable employee health habits.

17.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

17.01 Define entrepreneurship.
17.02 Describe the importance of entrepreneurship to the American economy.
17.03 List the advantages and disadvantages of agribusiness ownership.
17.04 Identify the risks involved in ownership of an agribusiness.
17.05 Identify the necessary personal characteristics of a successful entrepreneur.
17.06 Identify the business skills needed to operate a small agribusiness efficiently and effectively.

18.0 DEMONSTRATE PROFICIENCY IN APPLYING BASIC MATHEMATICS, SCIENCE, AND COMMUNICATION SKILLS TO AGRICULTURE PROBLEM SOLVING--The student will be able to:

18.01 Solve time, distance, area, and volume problems.
18.02 Solve ratio, proportion, and percentage problems.
18.03 Identify and interpert basic quantitative information contained in agricultural charts, graphs, and tables.
18.04 Identify basic concepts of physics in agricultural applications.
18.05 Identify basic concepts of chemistry in agricultural applications.
18.06 Identify basic biological concepts in agricultural applications.
18.07 Prepare written documents using standard rules of English, including punctuation, spelling, sentence structure, and references.
18.08 Prepare and give oral presentations using standard rules of English, including punctuation and sentence structure.
18.09 Demonstrate the scientific method in agricultural problem solving.

FACILITIES

Design Criteria

Listed below are the minimum, normal, and maximum space requirements for Agricultural Production instructional programs according to the **Rules of the Florida State Board of Education (Florida Administrative Code), Ch. 6A-2.**

DEDICATED SPACE
(in square feet)

	Per Student			Total (Based on 15 students)		
	Min.	Normal	Max.	Min.	Normal	Max.
Laboratory (large)	122	128	134	2440	2560	2680
A-7 Classroom Instruction				500	525	550
I-3 Lockers, Toilets, and Showers				140	150	160
M-1 Reference				190	200	210
P-1 Storage, Flammable				70	75	80
P-8 Storage, Material				165	175	185
S-7 Storage, Tool				260	275	290
Q-9 Storage, Machinery				1000	1100	1200
Required Program Space				4765	5060	5355

Shop and Laboratory

Classroom/laboratory areas should be designed to accommodate Agricultural Production workstations and equipment. Land laboratories may also be appropriate.

Suggested Equipment and Supplies

To provide instruction to meet the needs of future farm operators and workers in this area, adequate equipment, tools, and reference materials are necessary. Instructional programs will vary from one school to another. This fact makes it almost impossible to publish a basic list of equipment that will be adequate for all situations. Several factors influence the recommendation for tools and equipment necessary for instruction, including: (1) the number of students, (2) the available space, (3) the local budget, and (4) the objectives.

1 1/16-2-inch SAE socket set
1/2-inch HD electric drill
1/16-1/2-inch high speed drill set
100-foot, heavy-duty extension cord
100-foot steel tape measure
12-inch radial arm saw
225-AMP AC welder
3/8-inch HD electric drill
3/8-1 1/16-inch SAE socket set
3-horsepower air compressor
300-gallon water trough with automatic float
5-gallon safety gasoline can
5-gallon sprayer
5-gallon water can
50-foot water hoses
8-inch C-clamps
9/16-1-inch high-speed drill set
adjustable wrench set
air blowgun
air hose
Allen wrench set
all-purpose vacuum cleaner
anatomy set
animal tattoo set
animal thermometer
antifreeze tester
anvil
arc-welding bench
arc-welding screen
artificial-insemination equipment
auger-bit sets
back-fat probe
battery bottle kit
battery hydrometer
battery jumper cables
battery-cable puller
battery carrier
battery charger
battery-terminal brushes
battery-terminal clamp
bolt cutter
bricklayer's jointer
brick trowel
broadcast seeder
budding knives
calf puller
canvas slapper
carbon-arc torch
carpenter's levels
cartridge respirator
castrating knives
cattle brush set
cattle comb set
cattle feed trough
cattle oiler
cattle pellet implanter
cattle rack for pickup truck
cement edger
cement groover
center-punch set
chainsaw
chalk lines
chipping hammers
circuit tester
circular saw
cold-chisel set
combination square
come-along
conduit bender
counter brush set
creepers

creep feeder
crop moisture tester
cultivator
diesel tractor
disk
disk plow
drawknives
drencher
drill press
drill-press vise
drying oven
ear notcher
ear-tag tool
elastrators
electric animal clipper
electric engraving tool
electric fence charger
emasculator
end nipper
expansion bits set
extension ladder
eye goggles
feed-mineral collections
feeler gauge
fence strecher
fence tools
fence wire splicer
fertilizer collections
fertilizer spreader
file set
first-aid kit
flaring tool
float
folding rules
forage sampler
framing square
freeze-branding equipment
front-end loader
garden hoe
garden rake
general-purpose oiler
germinator
grafting tools
grain drill
grain scoop shovel
grass collections
hacksaw
halters
hammer set
hand crosscut saw
hand duster
hand grease gun
hand magnifiers
hand ripsaw
hand-sighting levels
hand truck
hatchet
hay rack
heavy-duty trouble lights
herbicide sprayer
hog ringer
hoof nipper
horse brush set
hot-branding equipment
hot shots
hume feeder
insect collections
insecticide collections
land-measuring wheel
lariats
leather capes and bibs
leather gloves
leveling blade
load binder
loading chute for cattle (port)
loading chute for swine
lopping shears
lubrication equipment set
machetes with sheaths
machinist's vise
manure fork
manure spreader
map measurer
masonry drill set
metric combination wrench set
metric socket set
microscope
mineral feeder
moldboard plow
mortar hoe
mower
obstetrical chains
oilcan
oil filter wrench
oil tappers
oily waste can
oxyacetylene-welding bench
oxyacetylene-welding cart
oxyacetylene-welding goggles
oxyacetylene-welding outfits
paint brush set
parts-cleaning brush set
pedestal grinder
Phillips screwdriver set

pickup truck
pipe cutter
pipe die
pipe vise
pipe wrench set
planter
plant presses
platform scale
pliers set
plumb bob
portable animal scale
portable corral
portable electric saw
portable farrowing houses
portable swine pens
posthole diggers
potato rake
power dehorner
pregnancy-testing kit
pruning saw
pruning shears
pry bars
ratchet braces
recording thermometer
refrigerator
round-point shovel
SAE combination wrench set
sander
sand seed sower
sawhorse brackets
seed cleaner and treater
seed collections
seed sieve
sharpening stone
show stick
single-bit axes
sledgehammer
soil augers
soil collection glass
soil-profile sampler
soil sieve
soil sterilizer
soil test kit
soil thermometer
soldering kit
sparkplug gauge
sprayer
spreader
square point shovel
squeeze chute for cattle
squeeze chute for swine
standard screwdriver set
steel shelving set
stepladder
stock cart
stud remover
swine oiler
swine pressure sprayer
syringe set
tally meters
tap and die set
thermostat
timing light
tip cleavers
tire-fluid adapter
tire gauge
tire-valve tool
tissue tester
tool cabinet
tooth nipper
towing chain with 2 hooks
tractor fuel funnel
vise grip
wagon
water trailer
weed collections
welder's brushes
welding clamps
welding helmets
wheelbarrow
wheel dresser for grinder
wire brush set
wire brush set for electric drill
wood-chisel set
wooden mallet set
woodworking vise
workbench
wrecking bars

Classroom

Classroom resources, including equipment and supplies, should be provided and utilized to enable the instruction to meet program objectives.

3-hole paper punch
4-drawer file cabinet
16mm projector
30-inch x 60-inch classroom table
36-inch x 21-inch x 78-inch storage cabinets
70-inch x 70-inch projection screen
acetate (for transparencies)
adding machine
adding-machine tape
blackout curtains
carbon paper
correction tape
desk trays
file folders and labels
filmstrip previewer
filmstrip projector
floppy diskettes
floppy disk storage cabinet with lock
glass-front display cabinet
grease pencils or transparency pens
hanging files
interval timer
ledger cards
legal-size bulletin files with dividers and inserts
letter-size bulletin files
line printer paper
line printer ribbons
microcomputer printer paper
microcomputer printer ribbons
microcomputer with monitor, printer, and modem
notebook rack
overhead projector
paper clips
paper cutter
paper punch
paper towels
pencil sharpener
photocopy paper
postal scales
projection tables
punched cards
rubber bands
rulers
scissors
slide previewer
slide projector with timer and synchronizer
speaker's lectern
spirit-duplicator fluid
spirit-duplicator paper
stapler
staple remover
staples
storage cabinet for slides/filmstrips
storage cabinet for transparencies
straight chairs
supplies for electronic accounting machine
supplies for posting machine
swivel chairs
tape and tape dispenser
tape recorder
teacher's desk
thumb tacks
two-person work and study tables
typewriter
typewriter ribbons
typewriter table

Teacher's Office

4-drawer filing cabinet for each teacher
bookcase or built-in book storage area
computer desk with space for computer, printer, disk drives, and modem
executive desk and chair for each teacher
secretary's desk with typewriter well and chair
visitor's chair

Safety

Although no specific safety regulations have been mandated for Agricultural Production programs, it is suggested that strict adherence to the general standards contained in the Florida Department of Education *Educational Facilities: Public Schools & Community Colleges* **Rules of Florida State Board of Education (Administrative Code), Ch. 6A-2 Rules** be practiced (e.g., first-aid kits in classrooms, adequate fire extinguishers, fire evacuation plan).

S.B.E. Rule 6A-2.097: Safety devices in shops, laboratories, and other process areas:

(1) Use of personal protection devices and other protective equipment is required when students and staff are exposed to the following:
   (a) arc welding, brazing, or cutting
   (b) spot welding, brazing, or cutting
   (c) machining of any materials causing flying chips
   (d) injurious radiations, dusts, fumes, gases, vapor mists
   (e) sledging, hammering, chipping, scaling, drilling, grinding, chiseling, wire brushing, and caulking operations where flying objects or particles may strike the body
   (f) chemicals, acids, caustics, and molten metals.

(2) Personal protection devices that come in contact with the skin shall be sanitized after each use.

(3) Clothing, jewelry, and personal grooming of personnel in shops and labs shall not constitute a hazard.

(4) Individual equipment power shut-off, within reach of the operator, shall be provided for all working machinery. Each individual machine shall be equipped with an approved electromagnetic starter switch.

(5) No safeguard, safety appliance, or safety device guarding a machine or machine part shall be removed or made ineffective except when the machine is stopped and for the purpose of immediate cleaning, repairing, or adjusting. Upon completion of repairing, cleaning, or adjusting, such guard, appliance, or device shall immediately be replaced. Any shop or laboratory tool or equipment found to be unsafe shall be red-tagged and removed from service until the condition is corrected.

(6) The floors in areas where machines are used shall be kept free from waste, grease, and obstructions.

(7) Welding operations shall be located in a shielded area, and the area shall be free of combustible material and persons not wearing protective devices.

(8) Areas where toxic fumes are produced shall be properly vented to the outside.

(9) Flammable fumes or dust produced in a student-occupied facility shall be mechanically exhausted to the outside with approved explosion-proof, motor-driven equipment, with filters in place.

(10) Each space equipped with unprotected gas valves accessible to students shall have an approved master cut-off readily accessible to the instructor.

(11) Each shop or lab equipped with electrically powered machinery accessible to students shall have one or more conspicuously color-coded disconnect switches at convenient locations throughout the space.

(12) Activities requiring welding and cutting shall be separated from areas with combustible materials.

(13) A tire cage shall be provided when pressurizing tires on split rims.

(14) Piping and working machinery with component parts shall be safety color-coded in accordance with **ANSI Z53.1-1971**.
(15) The safety color-coded chart shall be posted in a conspicuous place available to employees and students.
(16) Hazardous work and storage areas shall be identified by appropriate caution signs.
(17) All equipment designed to be permanently mounted shall be securely fastened to its supporting surface.
(18) Safety-zone lines shall be used on the floor area surrounding working machinery.
(19) Fume hoods shall be provided and kept in proper operating condition. Operations where flammable gas, toxic vapors, or noxious odors are given off shall be performed in the fume hoods.
(20) Safety equipment such as showers and floor drains, eye wash, fire blankets, and proper extinguishing equipment shall be provided, properly installed, and maintained correctly.

PROGRAM IMPLEMENTATION

Student Learning Guide

A sample student learning guide is provided in the Appendix as an example for you to use when developing or adapting a set of learning guides or modules. This sample guide presents the major components of a competency-based student learning guide. For further information see the *Florida Vocational Program Implementation Guide*.

Student Organization Participation

The vocational student organization associated with the Agricultural Production program is Future Farmers of America (FFA). This organization is cocurricular and is considered an integral part of the instructional program.

Refer to the *Florida Vocational Program Implementation Guide* for more information.

PROFESSIONAL CONSIDERATIONS

Teacher Certification

Listed below are the certification coverages included in the current Course Code Directory for Agricultural Production:

VOC AGRI @ 4	AGRI @4	AGRI PROD # 7
AGRICULTUR 1 2		

Professional Organizations and Support Services

Abraham Baldwin Agriculture College
ABAC Station
Tifton, GA 31793

Commissioner of Agriculture
Capitol Building
Tallahassee, FL 32301

Dairy Farmers Incorporated
P.O. Box 7854
Orlando, FL 32804

Department of Agricultural and Extension Education
305 Rolfs Hall
University of Florida
Gainesville, FL 32611

Division of Vocational, Adult, and Community Education
Florida Department of Education
Florida Education Center
Tallahassee, FL 32399

Florida A & M University
M. L. King, Jr. Boulevard
Tallahassee, FL 32307

Florida Association of Conservation Districts
P.O. Box 1269
Gainesville, FL 32602

Florida Association, FFA
Florida Education Center
Tallahassee, FL 32399

Florida Beef Cattle Improvement Association
University of Florida
Gainesville, FL 32611

Florida Beef Council
P.O. Box 1929
Kissimmee, FL 32741

Florida Cattlemen's Association
P.O. Box 1929
Kissimmee, FL 32741

Florida Council of Farmer Cooperatives
P.O. Box 730
Gainesville, FL 32602

Florida Farm Bureau Federation
P.O. Box 730
Gainesville, FL 32602

Florida FFA Foundation
2916 Apalachee Parkway
Tallahassee, FL 32301

Florida Forestry Association
P.O. Box 1696
Tallahassee, FL 32302

Florida Fruit & Vegetable Association
P.O. Box 20155
Orlando, FL 32814

Florida Irrigation Society
P.O. Box 1071
Apopka, FL 32703

Florida Pork Improvement Group
P.O. Box 730
Gainesville, FL 32602

Florida Poultry Federation, Inc.
5415 Mariner Street, Suite 105
Tampa, FL 33609

Florida Quarter Horse Association
P.O. Box 756
Nokomis, FL 33555

Florida Retail Federation
P.O. Box 10024
Tallahassee, FL 32302

Florida Santa Gertrudis Association
Star Route 1
DeBary, FL 32713

Florida Vocational Agriculture Teachers Association
(no permanent address)

Instructional Materials Service
305 Rolfs Hall
University of Florida
Gainesville, FL 32611

South Florida Farm Credit Service
P.O. Box 5559
Lake Worth, FL 33466

INSTRUCTIONAL RESOURCES

Listed on the following pages are sample material sources that are available for Agricultural Production. Additional resources may be available from other sources including professional and trade organizations. You are encouraged to seek catalogs from these firms so that you become familiar with materials available.

Sources of Print and Audiovisual Materials and Software

	Print	Audiovisual	Software
American Association for Vocational Instructional Materials 120 Engineering Ct. Athens, GA 30602	X	X	--
American Society of Agricultural Engineers 2950 Niles Rd. Saint Joseph, MI 49085-9659	X	--	--
American Society of Agronomy 677 S. Segoe Rd. Madison, WI 53711-1086	X	--	--
AVI Publishing Company Inc. Division of Van Nostrand Reinhold 115 Fifth Ave. New York, NY 10003-1004	X	--	--
Bergwall Productions P.O. Box 238 Garden City, NY 11530	--	X	X
Brick House Publishing Company 3 Main St. P.O. Box 512 Andover, MA 01810	X	--	--
Brodart Company 1236 S. Hatcher Ave. City of Industry, CA 91748	X	X	--
Career Aids Division of Opportunities for Learning Inc. 20417 Nordhoff St. Chatsworth, CA 91311	X	X	X
Conservative Foundation 1250 24th St. NW Washington, DC 20037	X	X	--

	Print	Audiovisual	Software
Delmar Publishing Inc. Division of International Thomson Educational Pub., Inc. 2 Computer Dr., W Albany, NY 12212-5015	X	X	--
Educational Images, Inc. 8382 S. Mica Way Morrison, CO 80465	X	X	X
Faber & Faber, Inc. 50 Cross St. Winchester, MA 01890	X	--	--
Gordon and Breach Science Publishers, Inc. P.O. Box 786 Cooper Station New York, NY 10276	X	--	--
Lea & Febiger 600 S. Washington Square Philadelphia, PA 19106-4198	X	--	--
National Center for Appropriate Technology Box 3838 Butte, MT 59702	X	--	--
National Dairy Council 6300 N. River Rd. Rosemont, IL 60018-4233	X	X	--
Oklahoma State University Press N. Monroe St. Stillwater, OK 74078	X	X	--
TAB Books, Inc. P.O. Box 40 Blue Ridge Summit, PA 17294-0850	X	--	--
UNIPUB Division of Kraus-Thomson Organization, Ltd. 4611-F Assembly Dr. Lanham, MD 20706-4391	X	X	--
University of Illinois at Champaign-Urbana Vocational Agriculture Service 1401 S. Maryland Dr. Urbana, IL 61801	X	--	--

	Print	Audiovisual	Software
Washington State University Press Cooper Publishing Building Pullman, WA 99164-5910	X	--	--

FEIS Services

FLORIDA EDUCATIONAL INFORMATION SERVICE
2003 Apalachee Parkway
Tallahassee, FL 32301
(904) 487-2054

If you need (1) information about copyright; (2) a list of instructors teaching Agricultural Production programs in Florida; (3) journal articles or project reports on specific topics; (4) curriculum and instructional materials; (5) information on current trends, issues, and research, please contact the Florida Educational Information Service (FEIS), Center for Instructional Development and Services, College of Education, Florida State University, 2003 Apalachee Parkway, Tallahassee, Florida 32301, (904) 487-2054. FEIS will tailor its services to meet your needs on information concerning resource materials.

APPENDIX

Sample Student Learning Guide
for
Agricultural Production

STUDENT LEARNING GUIDE

Outcome: 3.0 Describe breeding and livestock production procedures.

SPS: 3.03 Identify anatomy of male and female reproductive tracts of livestock.

Performance Objective:

This Learning Guide will identify the parts of the cow's reproductive system and explain artificial insemination and pregnancy testing. By knowing more about the cow's reproductive system, you will be able to improve your calf crop.

Adapted from material produced by Ridge Vocational Technical Center, ©1978. Used with permission.

STUDENT PERFORMANCE OBJECTIVES

GIVEN: A chart of cow anatomy

YOU WILL: Identify the parts of the cow's reproductive system.

HOW WELL: You must successfully complete the written test.

Enabling Objectives

1. Define the terms used in this Learning Guide.
2. Identify the procedure for pregnancy diagnosis and artificial insemination.

ENABLING OBJECTIVE 1

Define the terms used in this Learning Guide.

Learning Steps

1. Read Resource No. 1 to identify the terms used in this Learning Guide.
2. Read Resource No. 2 to define the terms.
3. Complete the Self-Check.
4. Go on to Enabling Objective No. 2.

Resources

1. Instruction Sheet, "Terms" enclosed
2. Text: *Beef Cattle in Florida*, pages 47-58
3. Self-Check enclosed

INSTRUCTION SHEET

TERMS

1. Ovaries --
2. Oviducts --
3. Uterus --
4. Cervix --
5. Vagina --
6. Vulva --
7. Scrotum --
8. Testicles --
9. Ductus deferens --
10. Secondary glands --
11. Pelvic urethra --
12. Penis --
13. Puberty --
14. Estrus --
15. Estrous cycle --
16. Gestation period --
17. Libido --
18. Age to breed --
19. Length of breeding season --
20. Calving interval --
21. Pregnancy diagnosis --
22. Artificial insemination --
23. Heat synchronization --

Refer to pp. 47-58 of *Beef Cattle in Florida* to learn the definitions of these terms.

SELF-CHECK

Directions

Evaluate your knowledge by defining the items below.

1. Ovaries --
2. Oviducts --
3. Uterus --
4. Cervix --
5. Vagina --
6. Vulva --
7. Scrotum --
8. Testicles --
9. Ductus deferens --
10. Secondary glands --
11. Pelvic urethra --
12. Penis --
13. Puberty --
14. Estrus --
15. Estrous cycle --
16. Gestation period --
17. Libido --
18. Age to breed --
19. Length of breeding season --
20. Calving interval --
21. Pregnancy diagnosis --
22. Artificial insemination --
23. Heat synchronization --

Now review your answers with your instructor.

ENABLING OBJECTIVE 2

Identify the procedure for pregnancy diagnosis and artificial insemination.

Learning Steps

1. View Resource No. 1 to identify how artificial insemination is done.
2. Read Resource No. 2 to identify how pregnancy diagnosis is done.
3. Complete the Self-Check.
4. When you think you can attain this task, take the written test.

Resources

1. Slide tape series: *Artificial Insemination in Beef Cattle*, 78-14
2. Text: *Beef Cattle in Florida*, pages 52-58
3. Self-Check (enclosed)
4. Written Test for Outcome 3.03

SELF-CHECK

Directions

Evaluate your knowledge by answering the items below.

1. Why should your fingernails be trimmed before entering a cow's rectum?
2. How large is the cervix?
3. What is meant by open cows?
4. What is a "horn"?
5. How can you tell if a cow is pregnant?
6. Which cows should be culled out?
7. How is semen stored?
8. How is semen collected?
9. How is semen deposited in the cow?
10. What equipment is needed for artificial insemination?
11. How is heat synchronization accomplished?
12. How do artificial insemination and pregnancy testing affect your calf crop?

Now review your answers with your instructor.

WRITTEN TEST FOR OUTCOME 3.03

Outcome: 3.0 Describe breeding and livestock production procedures.

Directions

The purpose of this test is to determine if you can identify the parts of a cow's reproductive system. To successfully complete this test, **all** items must be answered correctly. For those items missed, see your instructor for a review, additional learning activities or retesting.

The items below are Matching. On the separate Answer Sheet, on the line to the left of each item in Column A, write in the letter of the item in Column B that best identifies each item.

DO NOT MARK ON THIS TEST!

Matching Questions

A	B
____ 1. cartilaginous tissue that opens during heat allowing sperm to enter	a. ovaries
____ 2. external tissue of femal reproductive system	b. uterus
____ 3. connects the testicles to the urethra	c. cervix
____ 4. age when an animal is ready to mate	d. vulva
____ 5. period when a cow will accept a bull	e. testicles
____ 6. paired structures that contain the developing egg	f. ductus deferens
____ 7. paired structure where the sperm cells and testosterone are formed	g. puberty
____ 8. around 285 days in cattle	h. estrus
____ 9. contains 2 horns where the embryo develops	i. gestation period
____ 10. desire and ability of the bull to mate	j. libido
	k. secondary gland
	l. calving interval

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WRITTEN TEST FOR OUTCOME 3.03

Outcome: 03.0 Describe breeding and livestock production procedures.

The items below are either true or false. One the separate Answer Sheet, circle T if the item is true and F if the item is false.

DO NOT MARK ON THIS TEST!

True-False Questions

T F 1. Brahma bulls reach puberty faster than Angus bulls.

T F 2. The heat period lasts from 6 to 14 hours depending upon the cow.

T F 3. The estrous cycle averages 21 days.

T F 4. The breeding season should last from 9 to 12 months.

T F 5. One bull can mate 20 to 30 cows per season.

T F 6. A cow must be bred and taken in 3 months after calving if she is going to produce a calf per year.

T F 7. Open cows have one large uterine horn.

T F 8. During artificial insemination, one hand is placed in the rectum.

T F 9. The semen is deposited where the cervix joins the vagina.

T F 10. A cow must be in heat before she can be bred.

WRITTEN TEST FOR OUTCOME 3.03

Outcome: 03.0 Describe breeding and livestock production procedures.

Answer Key

Multiple Choice Questions

____ 1.	____ 6.	____ 11.	____ 16.	____ 21.
____ 2.	____ 7.	____ 12.	____ 17.	____ 22.
____ 3.	____ 8.	____ 13.	____ 18.	____ 23.
____ 4.	____ 9.	____ 14.	____ 19.	____ 24.
____ 5.	____ 10.	____ 15.	____ 20.	____ 25.

True-False Questions

T F 1.	T F 6.	T F 11.	T F 16.	T F 21.
T F 2.	T F 7.	T F 12.	T F 17.	T F 22.
T F 3.	T F 8.	T F 13.	T F 18.	T F 23.
T F 4.	T F 9.	T F 14.	T F 19.	T F 24.
T F 5.	T F 10.	T F 15.	T F 20.	T F 25.

Matching Questions

c 1.	a 6.	____ 11.	____ 16.	____ 21.
d 2.	e 7.	____ 12.	____ 17.	____ 22.
f 3.	i 8.	____ 13.	____ 18.	____ 23.
g 4.	b 9.	____ 14.	____ 19.	____ 24.
h 5.	j 10.	____ 15.	____ 20.	____ 25.

WRITTEN TEST FOR OUTCOME 3.03_____

ANSWER SHEET

_____ _____

Student's Name Date

NOTE: Record your answers for this test on this answer sheet--NOT on the test itself.

Multiple Choice Questions (Put letter of correct answer in the blank to the left of the number of the question.)

____ 1.	____ 6.	____ 11.	____ 16.	____ 21.
____ 2.	____ 7.	____ 12.	____ 17.	____ 22.
____ 3.	____ 8.	____ 13.	____ 18.	____ 23.
____ 4.	____ 9.	____ 14.	____ 19.	____ 24.
____ 5.	____10.	____ 15.	____ 20.	____ 25.

True-False Questions (Circle T for true and F for false.)

T F 1.	T F 6.	T F 11.	T F 16.	T F 21.
T F 2.	T F 7.	T F 12.	T F 17.	T F 22.
T F 3.	T F 8.	T F 13.	T F 18.	T F 23.
T F 4.	T F 9.	T F 14.	T F 19.	T F 24.
T F 5.	T F 10.	T F 15.	T F 20.	T F 25.

Matching Questions (On the line to the left of each item in Column A, write in the letter of the item in Column B that best identifies each item.)

____ 1.	____ 6.	____ 11.	____ 16.	____ 21.
____ 2.	____ 7.	____ 12.	____ 17.	____ 22.
____ 3.	____ 8.	____ 13.	____ 18.	____ 23.
____ 4.	____ 9.	____ 14.	____ 19.	____ 24.
____ 5.	____10.	____ 15.	____ 20.	____ 25.

Scorer's Signature _____ Date_____

Score _____

State of Florida
Department of Education
Tallahassee, Florida
Betty Castor, Commissioner
Affirmative action/equal opportunity employer

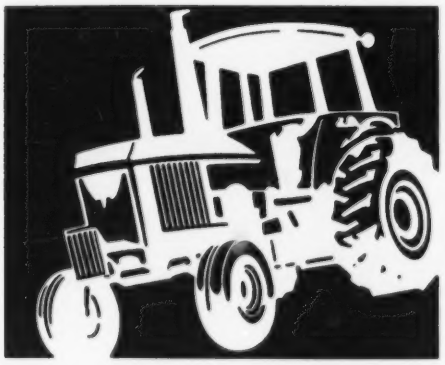
Division of Vocational, Adult, and Community Education

DVACE/07/90/450 12345789/90 AG 407 BK 90

Career Merit Achievement Plan

(Career MAP)

Agricultural Production (8106000)



Produced by
The Center for Instructional Development and Services
College of Education
Florida State University

For further information, contact
Bureau of Vocational Program and Staff Development
Division of Vocational, Adult, and Community Education
Department of Education
Knott Building
Tallahassee, FL 32399
(904) 488-0484

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Career Merit Achievement Plan

(Career MAP)

Agricultural Production
(8106000)

This Merit Achievement Plan records the achievements of

Student's Name _____

ID Number _____

Address _____

_____

School Name _____

Address _____

_____

Telephone ( ) _____
area code extension

Primary Instructor's Name _____

Initials _____

Other Instructor's Name _____

Initials _____ Signature _____

Date Started _____ Date Completed _____

I confirm that the information on this page is accurate.

_____
Primary Instructor's Signature Date

Acknowledgments

The following individuals are recognized for their valuable contributions to the identification and validation of the competencies reflected in this MAP:

Thomas Farinas, Pensacola
Bill Bradbury, Ocala
Richard Stotler, Winter Garden
Gregory Charles, St. Petersburg
Milton Galvez, Sarasota
Robert Capps, Plantation
Tom McCall, Gainesville
Gene Ellis, Tallahassee

The following individuals, all of the Center for Instructional Development and Services, Tallahassee, are also acknowledged for their contributions to this MAP:

Hyoja Lee, Project Manager
Susan Hyle, Information Researcher
Gary Carroll, Designer

Job Titles

The purpose of the Agricultural Production program is to prepare students for employment as:

General Farmworker II (421.687-010)
Diversified Crops Farmworker II (407.687-010)
Farm Machine Operator (409.683-010)
Livestock Farmworker (410.664-010)
or to provide supplemental training for persons previously or currently employed in these occupations.

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05.0 Feed Livestock 4
06.0 Fertilize Plants and Crops 5
07.0 Irrigate Plants and Crops 5
08.0 Maintain Animal Health and Sanitation 6
09.0 Control Weeds 7
10.0 Control Insects, Diseases, and Other Plant Pests 7
11.0 Fit, Show, and Exhibit Livestock 8
12.0 Harvest and Market Livestock and Crops 8
13.0 Construct, Repair, Maintain, Service, and Manage Equipment 9
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Overview

This Career MAP includes the performance and knowledge competencies required for entry into the field of agricultural production. Business and industry representatives have recommended that students in this field master these competencies in order to become employable. Local education agencies (LEAs) may adapt these competencies to meet their workforce needs.

Purposes of the MAP

The MAP is designed to display the intended outcomes and the student performance standards (SPSs) required by the LEA and to document the level of achievement on SPSs that the student demonstrates.

How to Use the MAP

Administrator and Instructor. The administrator and instructor can use Career MAPs in curriculum planning, program updating and improvement, and teacher recruitment, selection, and updating. If the LEA changes or adds SPSs, the revised or additional SPSs should be included in the blank boxes that appear within each intended outcome or in those that appear at the end of this MAP.

Instructor. The instructor can use Career MAPs to keep track of student progress on SPSs. By periodically reviewing the ratings on standards, the instructor can identify a student's strengths and weaknesses and on that basis identify the skills for which the student needs remedial instruction or advanced training. MAPs can also be useful in student counseling and evaluation.

Student. The student may use the MAP to show potential employers the competencies he or she has mastered. In order to present a complete record, the student should encourage the instructor to rate his or her performance level on all the appropriate competencies and to fill in the form on the title page of this document.

Employer. The MAP shows an employer the competencies demonstrated by the student (a prospective employee) and the proficiency level achieved on each competency. This information can help the employer make decisions about hiring, job assignments, and job-training needs.

How to Rate Student Performance

Performance Competencies. Ratings on SPSs that are performance competencies should be based upon business/industrial performance standards. The evaluator observes and evaluates student performance as he or she would in the role of employer or supervisor.

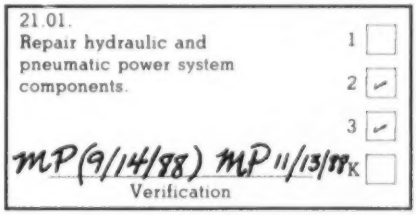
For each skill performed, the learner receives a rating of 1, 2, or 3. Each rating indicates a particular level of achievement:

1 = Learner demonstrates knowledge and understanding of this SPS, but is not yet able to apply that knowledge or understanding.

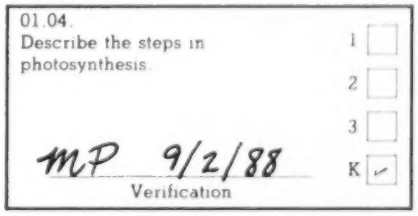
2 = Learner performs this SPS satisfactorily with only periodic supervision.

3 = Learner performs this SPS satisfactorily without supervision.

Whenever a performance competency is demonstrated, the instructor checks the appropriate rating box (1, 2, or 3) and initials and dates the verification line. If the student later demonstrates a higher level of achievement on a performance competency, the instructor checks the higher level and then enters his or her initials and the new date on the verification line, as shown in the following example:



Knowledge Competencies. For each SPS that is a knowledge competency only, with no manipulative skill involved, only one level of achievement is possible. If the student masters the competency, he or she receives a check in the bottom box ("K"), as shown below:



Note: An SPS without a checked rating indicates that the learner has not performed the standard—from lack of ability, time, opportunity, or need (the student's area of specialization may not have required it).

Agricultural Production Student Performance Standards

01.0 Compare Production Systems.

01.01 Compare different animal production systems. 1 2 3 K Verification	01.02 Compare different crop production systems. 1 2 3 K Verification	1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification

02.0 Select Livestock and Poultry.

02.01 Identify major parts of livestock anatomy. 1 2 3 K Verification	02.02 Identify breeds of commercial livestock. 1 2 3 K Verification	02.03 Evaluate desirable conformation characteristics of livestock. 1 2 3 K Verification
02.04 Identify wholesale cuts of beef and pork. 1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification

Agricultural Production Student Performance Standards

03.0 Describe Breeding and Livestock Production Procedures.

03.01
Compare breeding methods.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.02
Select methods of breeding livestock appropriate for enterprise.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.03
Identify anatomy of male and female reproductive tracts of livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.04
Describe and identify the reproductive cycle of livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.05
Identify procedures necessary for developing a breeding program and schedule.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.06
Identify signs of livestock pregnancy and methods of pregnancy testing.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.07
Identify signs of parturition and assist livestock at parturition.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.08
Identify causes of infertility in livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.09
Care for newborn livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

03.10
Describe methods of marking livestock for identification.
1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
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K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

Agricultural Production Student Performance Standards

04.0 Prepare Soil and Plant Crops.

04.01 Select site based on land capability. 1 2 3 K Verification	04.02 Perform vegetative and mechanical conservation practices. 1 2 3 K Verification	04.03 Operate and adjust tillage equipment. 1 2 3 K Verification
04.04 Prepare a seedbed or planting site. 1 2 3 K Verification	04.05 Select varieties of crops adapted to local growing conditions. 1 2 3 K Verification	04.06 Evaluate seed and planting materials. 1 2 3 K Verification
04.07 Calculate seeding rate and spacing. 1 2 3 K Verification	04.08 Calibrate and adjust planting equipment. 1 2 3 K Verification	04.09 Plant seed and plant material. 1 2 3 K Verification
04.10 Describe cultural practices for crops. 1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification

Agricultural Production Student Performance Standards

05.0 Feed Livestock.

05.01
Categorize major livestock food groups and explain function.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.02
Determine nutritional requirements of livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.03
Describe livestock digestive system.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.04
Maintain a fresh, clean water supply for livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.05
Calculate cost of gain per pound for different feed rations.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.06
Select and administer growth stimulators and implants.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.07
Interpret information on feed labels.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.08
Mix feed and feed livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.09
Balance a feed ration.
1 ☐
2 ☐
3 ☐
K ☐
Verification

05.10
Store feed properly.
1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
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3 ☐
K ☐
Verification

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K ☐
Verification

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Verification

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Verification

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K ☐
Verification

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2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

Agricultural Production Student Performance Standards

06.0 Fertilize Plants and Crops.

06.01
Collect soil or plant tissue samples for analysis.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

06.02
Determine nutrient requirements for plants.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

06.03
Calculate fertilization rates.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

06.04
Identify common nutrient deficiency symptoms in plants.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

06.05
Interpret information on a fertilizer label.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

06.06
Compare sources and forms of plant nutrients.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

06.07
Describe methods of applying fertilizer materials.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

06.08
Calibrate fertilization equipment.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

06.09
Fertilize plants.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

07.0 Irrigate Plants and Crops.

07.01
Recognize soil and plant conditions indicating irrigation needs.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

07.02
Compare irrigation equipment and methods.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

07.03
Operate irrigation equipment.
1 ☐ 2 ☐ 3 ☐ K ☐
Verification

1 ☐ 2 ☐ 3 ☐ K ☐
Verification

1 ☐ 2 ☐ 3 ☐ K ☐
Verification

1 ☐ 2 ☐ 3 ☐ K ☐
Verification

1 ☐ 2 ☐ 3 ☐ K ☐
Verification

1 ☐ 2 ☐ 3 ☐ K ☐
Verification

1 ☐ 2 ☐ 3 ☐ K ☐
Verification

08.0 Maintain Animal Health and Sanitation.

08.01
Identify and report common livestock diseases.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.02
Identify and report disorders associated with feeding (bloat, colic, mold, etc.).
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.03
Identify and report symptoms of stress in livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.04
Identify and report infestations of livestock internal and external parasites.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.05
Assist in the treatment of common livestock diseases and other health disorders.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.06
Administer medication and vaccines.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.07
Clean and disinfect trailers, pens, and other livestock equipment.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.08
Restrain livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.09
Dispose of animal waste.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.10
Identify and follow regulations regarding the use of pesticides and medications on breeding and slaughter animals.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.11
Describe methods of desexing livestock.
1 ☐
2 ☐
3 ☐
K ☐
Verification

08.12
Describe methods of dehorning.
1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
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3 ☐
K ☐
Verification

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Verification

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K ☐
Verification

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3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

09.0 Control Weeds.

09.01
Identify weeds common to growing area.
1 ☐
2 ☐
3 ☐
K ☐
Verification

09.02
Identify cultural practices which aid in weed control.
1 ☐
2 ☐
3 ☐
K ☐
Verification

09.03
Interpret information on herbicide label.
1 ☐
2 ☐
3 ☐
K ☐
Verification

09.04
Select appropriate herbicide for weed control.
1 ☐
2 ☐
3 ☐
K ☐
Verification

09.05
Calibrate chemical weed control equipment.
1 ☐
2 ☐
3 ☐
K ☐
Verification

09.06
Apply weed control chemicals.
1 ☐
2 ☐
3 ☐
K ☐
Verification

09.07
Identify and select mechanical weed control equipment.
1 ☐
2 ☐
3 ☐
K ☐
Verification

09.08
Operate and adjust mechanical weed control equipment.
1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

10.0 Control Insects, Diseases, and Other Plant Pests.

10.01
Identify common insects and diseases which affect local crops.
1 ☐
2 ☐
3 ☐
K ☐
Verification

10.02
Describe life cycles of common insects and diseases of plants.
1 ☐
2 ☐
3 ☐
K ☐
Verification

10.03
Interpret information on a pesticide label.
1 ☐
2 ☐
3 ☐
K ☐
Verification

10.04
Select appropriate pesticide for pest and crop conditions.
1 ☐
2 ☐
3 ☐
K ☐
Verification

10.05
Calibrate pesticide application equipment.
1 ☐
2 ☐
3 ☐
K ☐
Verification

10.06
Apply pesticides safely.
1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

Agricultural Production Student Performance Standards

11.0 Fit, Show, and Exhibit Livestock.

11.01 Train and/or break animals for show. 1 2 3 K Verification	11.02 Wash, clip, and groom livestock for show. 1 2 3 K Verification	11.03 Obtain, complete, and submit show application forms and other certificates (TB, Brucellosis certification). 1 2 3 K Verification
11.04 Feed animals for show. 1 2 3 K Verification	11.05 Prepare and maintain a clean and attractive livestock exhibit. 1 2 3 K Verification	11.06 Exhibit and show livestock. 1 2 3 K Verification
11.07 Prepare a show record book for exhibited animals. 1 2 3 K Verification	11.08 Trim hooves of livestock. 1 2 3 K Verification	1 2 3 K Verification

12.0 Harvest and Market Livestock and Crops.

12.01 Determine maturity of livestock and crops. 1 2 3 K Verification	12.02 Estimate volume of crop to be harvested. 1 2 3 K Verification	12.03 Harvest crops. 1 2 3 K Verification
12.04 Compare, select, and locate marketing channels. 1 2 3 K Verification	12.05 Grade, sort, and/or package harvested crops. 1 2 3 K Verification	12.06 Market crops and livestock. 1 2 3 K Verification
12.07 Identify and/or determine market grades of livestock. 1 2 3 K Verification	12.08 Load and transport agricultural products. 1 2 3 K Verification	1 2 3 K Verification

Agricultural Production Student Performance Standards

13.0 Construct, Repair, Maintain, Service, and Manage Equipment.

13.01 Construct, repair, and maintain gates, pens, cages, and fences. 1 2 3 K Verification	13.02 Repair and maintain agricultural buildings and shelters. 1 2 3 K Verification	13.03 Construct livestock shelters. 1 2 3 K Verification
13.04 Repair, maintain, service, and adjust agricultural equipment. 1 2 3 K Verification	13.05 Operate farm tractor safely. 1 2 3 K Verification	13.06 Install, repair, and service irrigation equipment. 1 2 3 K Verification
13.07 Use and maintain hand and power hand tools safely. 1 2 3 K Verification	13.08 Maintain and service small gasoline engines safely. 1 2 3 K Verification	13.09 Cut and weld with arc and acetylene welding equipment safely. 1 2 3 K Verification
13.10 Prepare equipment for storage. 1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification

14.0 Maintain Records.

14.01 Maintain production, performance, and breeding records. 1 2 3 K Verification	14.02 Maintain machinery, equipment, and facilities inventory records. 1 2 3 K Verification	14.03 Maintain breed, vaccination, and health certificates and records. 1 2 3 K Verification
14.04 Identify agencies assisting and/or regulating the agricultural business. 1 2 3 K Verification	14.05 Maintain basic business records (inventory, depreciation, receipts, expenses, taxes, etc.). 1 2 3 K Verification	14.06 Maintain supervised occupational experience records. 1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification

15.0 Follow Safety Precautions.

15.01 Handle, store, and dispose of agricultural chemicals and containers safely. 1 2 3 K Verification	15.02 Handle and store flammable materials properly. 1 2 3 K Verification	15.03 Recognize symptoms of chemical pesticide, herbicide, etc., poisoning and apply first aid. 1 2 3 K Verification
15.04 Practice safe livestock handling procedures. 1 2 3 K Verification	15.05 Recognize common safety symbols. 1 2 3 K Verification	1 2 3 K Verification
1 2 3 K Verification	1 2 3 K Verification	1 2 3 K Verification

16.0 Demonstrate Leadership, Communication, Employability, and Human Relations Skills.

16.01
Conduct a job search.
1 ☐
2 ☐
3 ☐
K ☐
Verification

16.02
Secure information about a job.
1 ☐
2 ☐
3 ☐
K ☐
Verification

16.03
Identify documents that may be required when applying for a job.
1 ☐
2 ☐
3 ☐
K ☐
Verification

16.04
Complete a job application form correctly.
1 ☐
2 ☐
3 ☐
K ☐
Verification

16.05
Demonstrate competence in job interview techniques.
1 ☐
2 ☐
3 ☐
K ☐
Verification

16.06
Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
1 ☐
2 ☐
3 ☐
K ☐
Verification

16.07
Identify acceptable work habits.
1 ☐
2 ☐
3 ☐
K ☐
Verification

16.08
Demonstrate knowledge of how to make job changes appropriately.
1 ☐
2 ☐
3 ☐
K ☐
Verification

16.09
Demonstrate acceptable employee health habits.
1 ☐
2 ☐
3 ☐
K ☐
Verification

17.0 Demonstrate an Understanding of Entrepreneurship.

17.01
Define entrepreneurship.
1 ☐
2 ☐
3 ☐
K ☐
Verification

17.02
Describe the importance of entrepreneurship to the American economy.
1 ☐
2 ☐
3 ☐
K ☐
Verification

17.03
List the advantages and disadvantages of agribusiness ownership.
1 ☐
2 ☐
3 ☐
K ☐
Verification

17.04
Identify the risks involved in ownership of an agribusiness.
1 ☐
2 ☐
3 ☐
K ☐
Verification

17.05
Identify the necessary personal characteristics of a successful entrepreneur.
1 ☐
2 ☐
3 ☐
K ☐
Verification

17.06
Identify the business skills needed to operate a small agribusiness efficiently and effectively.
1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

1 ☐
2 ☐
3 ☐
K ☐
Verification

Cooperative Work Experience

In addition to the classroom training and laboratory performance identified on the Career MAP, this student has participated in cooperative work experience as shown below.

Dates _____ Employer _____

Employer's Address _____

Supervisor's Name and Title _____

Dates _____ Employer _____

Employer's Address _____

Supervisor's Name and Title _____

Dates _____ Employer _____

Employer's Address _____

Supervisor's Name and Title _____

Dates _____ Employer _____

Employer's Address _____

Supervisor's Name and Title _____

Dates _____ Employer _____

Employer's Address _____

Supervisor's Name and Title _____

Notes

The instructor may record comments here on the student's performance and attitudes or supply other information about the qualifications of the student as a potential employee.

Instructor's Signature

Date

State of Florida
Department of Education
Tallahassee, Florida
Betty Castor, Commissioner
Affirmative action/equal opportunity employer

Division of Vocational, Adult, and Community Education

DVACE 02/89/2400 123456789/89 AG 406 BK 89